



United States Department of Agriculture  
Natural Resources Conservation Service  
Plant Materials Program

## 'Vavilov II' Siberian wheatgrass *Agropyron fragile* (Roth) Candargy

A Conservation Plant Release by USDA NRCS Aberdeen Plant Materials Center, Aberdeen, Idaho



'Vavilov II' Siberian wheatgrass seed production field

'Vavilov II' is a broad based, 50 clone synthetic, developed from clones of Siberian wheatgrass from Kazakhstan and genotypes from the original 'Vavilov' release. It was developed by the Agricultural Research Service (ARS), Forage and Range Laboratory in cooperation with the United States Army, Utah State University and NRCS Plant Materials Center (PMC), Aberdeen, ID.

### Description

Siberian wheatgrass is an introduced, long-lived, cool season, drought tolerant, winter hardy bunch grass with an extensive root system. Siberian wheatgrass is very similar to fairway and standard crested wheatgrass, but has finer leaves and stems, narrower and awnless glumes and lemmas, and the spikelets are more ascending, which gives the spike a narrow, oblong, sub-cylindrical shape.

### Source

The parent material for Vavilov II was selected from evaluation trials at Yakima, WA, Lakeside, UT and Curlew Valley, ID and genotypes from 'Vavilov' and from collections from Kazakhstan to form a synthetic which can withstand heavy livestock use and vehicular traffic such as found on military training sites. Vavilov II was released by the ARS, United States Army, Utah State University and NRCS Aberdeen PMC in 2007.

### Conservation Uses

Siberian wheatgrass is commonly seeded in the arid regions of the western United States. It is palatable to all classes of livestock and wildlife. Siberian wheatgrass is commonly recommended for livestock forage production. It is a preferred feed for cattle, sheep, horses, and elk in spring, early summer and also in the fall, if additional growth occurs from late growing season rainfall. Siberian wheatgrass is well adapted for stabilization of disturbed soils. It competes well with aggressive introduced plants such as cheatgrass during the establishment period. Its drought tolerance, fibrous root system, and excellent seedling vigor make Vavilov II ideal for reclamation in areas receiving 8 inches or more annual precipitation. This grass can be used in urban areas where irrigation water is limited to provide ground cover, weed control and to stabilize ditch banks, dikes, pipelines, power lines, and roadsides.

### Area of Adaptation and Use

Vavilov II Siberian wheatgrass is adapted for non-irrigated seedings where annual precipitation averages 8-14 inches and where the frost-free period is generally less than 160 days. It is known to surpass fairway and standard crested wheatgrass in rate of establishment, stand persistence, and total forage yield on more arid sites (8 to 10 inches annual precipitation). It is very tolerant of fire.

Vavilov II is well adapted to sandy to fine sandy loam to silt loam, droughty soils. It has been seeded in areas with as little as 5 inches of annual precipitation with some success. Siberian wheatgrass is cold tolerant and can withstand moderate periodic flooding, not exceeding 7-10 days in the spring. It will not tolerate long periods of standing water, poorly drained soils, or excessive irrigation.

### Establishment and Management for Conservation Plantings

Siberian wheatgrass should be seeded with a drill at a depth of 1/4-1/2 inch into a firm, weed-free seedbed. The recommended seeding rate is 6 pounds pure live seed (PLS) per acre. When used as a component of a seed mix, adjust to the percent of mix desired.

Vavilov II is noted for having excellent seedling vigor and stand establishment. It should not be seeded with native species unless seeding rates for Vavilov II are very low (< 2 pounds PLS/ac). Under favorable conditions it provides good competition for winter-annual weedy species such as cheatgrass and medusahead.

Stands may require weed control measures during establishment. Application of broadleaf herbicides should not be made until grass has reached the four to six leaf stage. Mowing the stand when weeds are beginning to bloom will reduce weed seed development. Grasshoppers and other insects may damage new stands and the use of insecticides may be required. Be sure to read and follow pesticide labels.

New stands should not be grazed until the plants are firmly established and have started to produce seed heads. Six inches of new growth should be attained in the spring before grazing is allowed in established stands. Three inches of stubble should remain at the end of the growing season to maintain long-term health of the grass stand.

### **Ecological Considerations**

Since Vavilov II is an introduced plant from Asia, it is not an appropriate component in native plant community restoration. This release is from a species that was introduced to the United States in the early 1900's. Vavilov II represents an incremental improvement in performance within a well documented species. Vavilov II spreads very little via natural seed distribution. It is not considered a weedy or invasive species but can spread into adjoining vegetative communities under ideal environmental conditions. There are no known negative impacts on wild or domestic animals.

### **Seed and Plant Production**

Seed production of Siberian wheatgrass has been very successful under cultivated conditions. Row spacing of 24 to 30 inches when irrigated and 36 inches or greater under dryland conditions are recommended. Early spring or late fall seedings are recommended under dryland conditions. Early spring seedings are recommended under irrigated conditions. To obtain maximum seed production, fall plantings are not recommended.

Control weeds during stand establishment and long term management of stand by clipping, hand rouging or light rates of herbicide (2,4-D or Bromoxynil according to label) after the five-leaf stage. Fertilizer is generally not recommended during establishment. If soil nitrogen and phosphorus are low, an application of 10-15 pounds per acre nitrogen and 20-30 pounds per acre phosphorus may be applied prior to planting. Fertilize for full seed production following the establishment year in early fall or use a split application in early fall and again in early spring. Very early spring application of nitrogen may be beneficial on sandy soils to promote vegetative growth. When irrigated, apply adequate moisture for germination, establishment and to bring soils to field capacity.

Following stand establishment, fertilize and irrigate soon after seed harvest in fall to stimulate seed head primordia

development. Do not stress plants during re-growth and tillering in the fall, late boot stage, and during pollination. Avoid irrigating during flowering.

Seed fields are productive for four to five years. Average production of 200 to 300 pounds per acre can be expected under dryland conditions in 14 inch plus annual precipitation zones. Average production of 500 to 600 pounds per acre can be expected under irrigated conditions. The seed heads do not readily shatter, but some shatter can be expected. Harvesting is best completed by direct combining when the top of the seed head begins to shatter or wind-rowing at hard dough stage and combining with pickup attachment in about 5 to 7 days. Seed is generally harvested in mid July to mid August.

### **Availability**

*For conservation use:* Vavilov II seed is widely available.

*For seed or plant increase:* Breeder seed is maintained by the ARS Forage and Range Laboratory and Foundation Seed is produced by the Aberdeen PMC. Foundation seed is available through the University of Idaho Foundation Seed Program and the Utah Crop Improvement Association. Certified seed is limited to not more than one generation from Foundation Seed. Vavilov II has variety protection under the Plant Variety Protection Act of 1970 and can be marketed only as a class of certified seed.

*For more information, contact:*  
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### **Citation**

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